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SPECIFICATION FOR SYNCHRONIZING PULSE GENERATOR

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Indian Standard

SPECIFICATION FOR SYNCHRONIZING PULSE GENERATOR

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 29 December 1980, after the draft finalized by the Electronic Measuring Equipment Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

0.2 This standard relates to synchronizing pulse generator used in television servicing and measurements.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This Indian Standard covers synchronizing pulse generator which provides horizontal, vertical and combined blanking and synchronizing pulse signals for the operation of television equipment working on the standard system B (the 625 line standard) of the International Radio Consultative Committee (CCIR).

2. FEATURES

2.1 Synchronization should be possible by any one of the following:

a) Quartz crystal;
b) ac mains; and
c) An external signal of twice the line frequency.

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*Rules for rounding off numerical values (*revised*).

2.2 It should be possible to select the modes of synchronization either from the front panel of the unit or by remote control.

2.3 It should have internal electronically stabilized power supply to make the pulse widths, relative phasings and amplitudes of all pulses, independent of mains-voltage fluctuations.

3. TYPE OF CONSTRUCTION

3.1 The synchronizing pulse generator may be:

a) Preferably plug-in-modules type;

b) Portable type; and

c) Standard rack mounting type.

4. POWER SUPPLY

4.1 The synchronizing pulse generator shall be designed to operate from 240 V ± 10 percent, 50 Hz ac power source. Adjustable internal links to enable operation on 210 V, 220 V, 230 V, and 240 V shall also be incorporated in the pulse generator.

5. TELEVISION STANDARD

5.1 The pulse generator shall be capable of supplying pulses for the television equipment working on the standard system B (625 line standard) of CCIR (*see* IS : 4547-1978*).

6. CRYSTAL SYNCHRONIZATION FREQUENCY

6.1 The crystal synchronization frequency shall be 31 250 Hz ± 0·01 percent.

7. MAINS SYNCHRONIZATION

7.1 Pull-in-Range — 48-52 Hz.

7.2 Hold-in-Range — 46-54 Hz.

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*Receivers for monochrome television broadcast transmissions (*first revision*).

8. INPUT FOR EXTERNAL SYNCHRONIZATION

8.1 The input for external synchronization shall have the following characteristics:

a) Frequency	31 250 Hz ± 10 percent
b) Waveform	Sinusoidal or rectangular
c) Amplitude	⩾ 3 Vpp
d) Input impedance	> 5 k ohms

8.2 The frequency accuracy of the synchronizing pulse generator with crystal synchronization shall be ±5 cycles in a million.

9. OUTPUT

9.1 The output shall have the following characteristics:

a) Synchronization pulse edge rise time	−4 Vpp ±0·5 Vpp at 75Ω 150 ± 50 ns
b) One each V, H and blanking edge rise time	−4 Vpp ±0·5 Vpp at 75Ω 150 ± 50 ns
c) Pulse tilt	< 2 percent
d) Overshoot	⩽ 1 percent
e) Durations of the pulses:	
i) Horizontal drive pulse (H)	7·15 ± 0·15 μs
ii) Position of horizontal leading edge with respect to the leading edge of the horizontal blanking	1·55 ± 0·15 μs
iii) Vertical drive pulse (V)	10 H
iv) Blanking pulse — horizontal	12·05 ± 0·15 μs
v) Blanking pulse — vertical	25 H

vi) Position of the leading edge of vertical blanking position of leading edge with reference to leading edge of the first equalizing pulse in synchronization signal	2·5 H after A_V (vertical blanking) 4·7 µs
vii) Synchronizing signal — horizontal component	4·7 ± 0·1 µs
viii) Equalizing pulse	2·3 ± 0·1 µs
ix) Interval between two equalizing pulses	4·7 ± 0·1 µs
x) Deviation of the synchronizing edges of the equalizing and interruption pulses with respect to conditions of H pulses in the synchronizing signal on the whole temperature range	< 50 ns